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### 1 [Fine grained kernel logging with KLogger: experience and insights](#)

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Yoav Etsion, Dan Tsafir, Scott Kirkpatrick, Dror G. Feitelson

June 2007 ACM SIGOPS Operating Systems Review, Volume 41 Issue 3

Publisher: ACM

Full text available: pdf(652.32 KB)

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Understanding the detailed behavior of an operating system is crucial for making informed design decisions. But such an understanding is very hard to achieve, due to the increasing complexity of such systems and the fact that they are implemented and ...

Keywords: KLogger, Linux, kernel logging, locking, operating systems, overheads, performance evaluation, scheduling

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### 2 [JIT instrumentation: a novel approach to dynamically instrument operating systems](#)



Marek Olszewski, Keir Mierle, Adam Czajkowski, Angela Demke Brown

June 2007 ACM SIGOPS Operating Systems Review, Volume 41 Issue 3

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Full text available: pdf(3.71 MB)

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As modern operating systems become more complex, understanding their inner workings is increasingly difficult. Dynamic kernel instrumentation is a well established method of obtaining insight into the workings of an OS, with applications including debugging, ...

Keywords: JIT compiler, binary rewriting, dynamic instrumentation, kernel analysis tools

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### 3 [Fine grained kernel logging with KLogger: experience and insights](#)



Yoav Etsion, Dan Tsafir, Scott Kirkpatrick, Dror G. Feitelson

March 2007 EuroSys '07: Proceedings of the ACM SIGOPS/EuroSys

European Conference on Computer Systems 2007

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Keyw ords: KLogger, Linux, kernel logging, locking, operating systems, overheads, performance evaluation, scheduling

#### 4 Fine-grained dynamic instrumentation of commodity operating system kernels

Ariel Tamches, Barton P. Miller

February 1999 OSDI '99: Proceedings of the third symposium on Operating systems design and implementation

Publisher: USENIX Association

Additional Information: [full citation](#), [references](#), [cited by](#), [index terms](#)

#### 5 JIT instrumentation: a novel approach to dynamically instrument operating systems



Marek Olszewski, Keir Mierle, Adam Czajkowski, Angela Demke Brown

March 2007 EuroSys '07: Proceedings of the ACM SIGOPS/EuroSys European Conference on Computer Systems 2007

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Keyw ords: JIT compiler, binary rewriting, dynamic instrumentation, kernel analysis tools

#### 6 Nonintrusive precision instrumentation of microcontroller software



Ben L. Titzer, Jens Palsberg

July 2005 ACM SIGPLAN Notices, Volume 40 Issue 7

Publisher: ACM

Full text available: [pdf\(188.83 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

Debugging, testing, and profiling microcontroller programs are notoriously difficult. The lack of supporting software such as an operating system, a narrow interface to the hardware chip, and delicately timed sequences of code present significant challenges ...

Keyw ords: cycle-accurate, debugging, instruction-level simulation, instrumentation, monitoring, parallel simulation, profiling, sensor networks

#### 7 Nonintrusive precision instrumentation of microcontroller software




Ben L. Titzer, Jens Palsberg

June 2005 LCTES '05: Proceedings of the 2005 ACM SIGPLAN/SIGBED conference on Languages, compilers, and tools for embedded

systems

Publisher: ACM

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Keyw ords: cycle-accurate, debugging, instruction-level simulation, instrumentation, monitoring, parallel simulation, profiling, sensor networks

## 8 [Mechanisms and policies for supporting fine-grained cycle stealing](#)



Kyung Dong Ryu, Jeffrey K. Hollingsworth, Peter J. Keleher  
May 1999 ICS '99: Proceedings of the 13th international conference on Supercomputing

Publisher: ACM

Full text available:  pdf(1.17 MB) Additional Information: [full citation](#), [references](#), [cited by](#),  
[index terms](#)


Keyw ords: cluster computing, high-performance computing, networks of workstations, parallel computing

## 9 [Web cache prefetching as an aspect: towards a dynamic-weaving based solution](#)



Marc Ségura-Devillechaise, Jean-Marc Menaud, Gilles Muller, Julia L. Lawall  
March 2003 AOSD '03: Proceedings of the 2nd international conference on Aspect-oriented software development

Publisher: ACM

Full text available:  pdf(1.08 MB) Additional Information: [full citation](#), [abstract](#), [references](#),  
[cited by](#), [index terms](#)

Given the high proportion of HTTP traffic in the Internet, Web caches are crucial to reduce user access time, network latency, and bandwidth consumption. Prefetching in a Web cache can further enhance these benefits. For the best performance, however, ...

Keyw ords: Web caches, adaptable software, aspect-oriented programming, code instrumentation, pointcut language

## 10 [PinOS: a programmable framework for whole-system dynamic instrumentation](#)



Prashanth P. Bungale, Chi-Keung Luk  
June 2007 VEE '07: Proceedings of the 3rd international conference on Virtual execution environments

Publisher: ACM

Full text available:  pdf(399.17 KB) Additional Information: [full citation](#), [abstract](#),  
[references](#), [index terms](#)

*PinOS* is an extension of the *Pin* dynamic instrumentation framework for whole-system instrumentation, i.e., to instrument both kernel and user-level code. It achieves this by interposing between the subject system and hardware using virtualization ...

Keyw ords: binary translation, dynamic instrumentation, program

analysis tools, virtualization, whole-system

11 [Dynamic and adaptive updates of non-quiescent subsystems in commodity operating system kernels](#)



Kristis Makris, Kyung Dong Ryu

March 2007 EuroSys '07: Proceedings of the ACM SIGOPS/EuroSys European Conference on Computer Systems 2007

Publisher: ACM

Full text available: [pdf\(452.03 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Continuously running systems require kernel software updates applied to them without downtime. Facilitating fast reboots, or delaying an update may not be a suitable solution in many environments, especially in pay-per-use high-performance computing ...

Keywords: DynAMOS, adaptive operating system, dynamic instrumentation, dynamic software updates, function cloning

12 [Dynamic and adaptive updates of non-quiescent subsystems in commodity operating system kernels](#)



Kristis Makris, Kyung Dong Ryu

June 2007 ACM SIGOPS Operating Systems Review, Volume 41 Issue 3

Publisher: ACM

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Keywords: DynAMOS, adaptive operating system, dynamic instrumentation, dynamic software updates, function cloning

13 [Evaluating fragment construction policies for SDT systems](#)



Jason D. Hiser, Daniel Williams, Adrian Filipi, Jack W. Davidson, Bruce R. Childers

June 2006 VEE '06: Proceedings of the 2nd international conference on Virtual execution environments

Publisher: ACM

Full text available: [pdf\(350.21 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

Software Dynamic Translation (SDT) systems have been used for program instrumentation, dynamic optimization, security policy enforcement, intrusion detection, and many other uses. To be widely applicable, the overhead (runtime, memory usage, and power ...

Keywords: dynamic translation performance, low overhead, performance, software dynamic translator

14 [Transparent debugging of dynamically instrumented programs](#)



Naveen Kumar, Ramesh Peri

December 2005 ACM SIGARCH Computer Architecture News, Volume 33 Issue 5

Publisher: ACM

Full text available:  [pdf\(280.45 KB\)](#) Additional Information: [full citation](#), [abstract](#),  
[references](#), [index terms](#)

Dynamic instrumentation systems, used for program analysis, bug isolation, software security and simulations, are becoming increasingly popular. There exists a need to debug dynamically instrumented programs while keeping the presence of dynamic instrumentation ...

15 [Persistent Code Caching: Exploiting Code Reuse Across Executions and Applications](#)

Vijay Janapa Reddi, Dan Connors, Robert Cohn, Michael D. Smith  
March 2007 CGO '07: Proceedings of the International Symposium on Code Generation and Optimization  
Publisher: IEEE Computer Society


Full text available:  [pdf\(335.51 KB\)](#) Additional Information: [full citation](#), [abstract](#), [index terms](#)

Run-time compilation systems are challenged with the task of translating a program's instruction stream while maintaining low overhead. While software managed code caches are utilized to amortize translation costs, they are ineffective for programs with ...

16 [Automated reduction of the memory footprint of the Linux kernel](#)



Dominique Chagnet, Bjorn De Sutter, Bruno De Bus, Ludo Van Put, Koen De Bosschere  
September 2007 ACM Transactions on Embedded Computing Systems (TECS), Volume 6 Issue 4  
Publisher: ACM

Full text available:  [pdf\(1.43 MB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#),  
[index terms](#)


The limited built-in configurability of Linux can lead to expensive code size overhead when it is used in the embedded market. To overcome this problem, we propose the application of link-time compaction and specialization techniques that exploit the ...

Keyw ords: Linux kernel, compaction, compression, operating system, specialization, system calls

17 [Improved error reporting for software that uses black-box components](#)



Jungwoo Ha, Christopher J. Rossbach, Jason V. Davis, Indrajit Roy, Hany E. Ramadan, Donald E. Porter, David L. Chen, Emmett Witchel  
June 2007 PLDI '07: Proceedings of the 2007 ACM SIGPLAN conference on Programming language design and implementation  
Publisher: ACM

Full text available:  [pdf\(345.48 KB\)](#) Additional Information: [full citation](#), [abstract](#),  
[references](#), [cited by](#), [index terms](#)

An error occurs when software cannot complete a requested action as a result of some problem with its input, configuration, or environment. A high-quality error report allows a user to understand and correct the problem. Unfortunately, the quality of ...

Keyw ords: classification, error report, machine learning, profiling,


software support

# 18 [Supporting autonomic computing functionality via dynamic operating system kernel aspects](#)

Michael Engel, Bernd Freisleben

March 2005 AOSD '05: Proceedings of the 4th international conference on Aspect-oriented software development

Publisher: ACM

Full text available:  [pdf\(381.44 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

To master the complexity of software systems in the presence of unexpected events potentially affecting system operation, the *Autonomic Computing Initiative* [16] aims to build systems that have the ability to control and organize themselves to ...


Keyw ords: NetBSD, autonomic computing, dynamic aspects, operating system kernel, organic computing

# 19 [Safety checking of machine code](#)

Zhichen Xu, Barton P. Miller, Thomas Reps

May 2000 ACM SIGPLAN Notices, Volume 35 Issue 5

Publisher: ACM

Full text available:  [pdf\(306.71 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [cited by](#), [index terms](#)

We show how to determine statically whether it is safe for untrusted machine code to be loaded into a trusted host system. Our safety-checking technique operates directly on the untrusted machine-code program, requiring only that the initial inputs ...

# 20 [Insights into providing dynamic adaptation of operating system policies](#)

Patricia J. Teller, Seetharami R. Seelam

April 2006 ACM SIGOPS Operating Systems Review, Volume 40 Issue 2

Publisher: ACM

Full text available:  [pdf\(421.44 KB\)](#) Additional Information: [full citation](#), [abstract](#), [references](#), [index terms](#)

The DAiSES research project, initiated in September 2004, has allowed us to understand the potential value of and challenges associated with providing dynamic OS policy adaptation. During this period the project has had two major research foci, investigation ...

Keyw ords: adaptation, input-output schedulers, operating systems, performance analysis, process schedulers

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